upon being applied to the skin in some way effected an entrance and soon began multiplying, giving rise to the well known itching and blisters. In the serum from the blisters the white blood corpuscles were found filled with wriggling bacteria. The same were found, though not so carefully studied, in the poisonous fungi. The conclusion is reached that many plants harbor these bacteria, which upon being transferred to man induce disease and hence are called poisonous.

In a history of Floyd County, Iowa, Prof. J. C. Arthur has published an account of the botany of that region. It has the merit of being an unusual method of treating such a subject which is at the same time philosophical. The usual method is to give a bare list of the Phanerogams, and may be the Ferns, entirely neglecting those vast groups of organisms which are below them in rank but are very important. Such a list could not be given in an exhaustive way but the grouping of the leading forms in a scientific way will be a revelation to old fashioned botanists who know of nothing lower than that old "catch-all" called "Fungi." Prof. Arthur explains all these groups in such a simple way that any one can understand them and know where to look for illustrative forms. The grouping is the one given in Bessey's Botany which divides the plant kingdom into seven great groups, viz: 1. *Protophyta* or Sexless Plants, and some of the uninitiated citizens of Floyd County must have been startled by the Professor when they read of some members of this group that "they creep about over the ground, and in dry weather crawl beneath the surface, or under sticks and leaves"; 2. *Zygosporeæ* or Unisexual Plants, under which a simple description of the common *Spirogyra* is given and certain molds; 3. *Oosporeæ* or Egg-spore Plants, illustrated by *Saprolegnia* or the fly-fungus and the potato-fungus; 4. *Carposporeæ* or Mushrooms and their Allies, in which group one can hardly look around without finding abundant means of illustration; 5. *Bryophyta* or Mosses and Liverworts; 6. *Pteridophyta* or Ferns and their Allies; 7. *Phanerogamia* or Seed-bearing Plants. The idea that Phanerogams form the principal part of the vegetable kingdom fades away under such a treatment of the subject and this great division shrinks to its proper dimensions as but one of seven groups. At the same time, while this is science, sentiment will always consider that Phanerogams contain about all the plants worth mentioning.

The black-fruited Cratægi and a new species.—We know within the limits of our flora of two black-fruited *Cratægi*, both from the western half of the continent. Mr. G. W. Letterman has now discovered a third one along Red River. These three species may be distinguished from our ordinary red-fruited ones, to be designated as Sect. *Erythrocarpus*, as Sect. *Melanocarpus*, and may be characterized by their black or black-purple or bluish fruit;

leaves, at least at first, appressed hairy on the upper and glabrous on the under side; flowers in corymbs, styles usually 5; spines mostly short and stout, often recurved. The three species are:

C. Douglasii, Lindl., the westernmost species, from British Columbia to California, with broader, thinner, doubly serrate leaves, the upper ones on the shoots lobed, and with broad, incised-toothed stipules; calyx lobes usually entire; fruit smaller, black-purple, ripe (in Northern California) in August; nutlets 2 to 3 lines long, strongly ridged on the back; spines ½ to 1 inch long.

C. rivularis, Nutt., in the Rocky and Wasatch Mountains of Colorado and Utah, with narrower, more rigid, lanceolate-ovate, singly serrate leaves, only the upper ones of the shoots broader, doubly serrate or rarely slightly incised, with narrow glandular-incised stipules; calyx lobes usually glandular; fruit larger; nutlets 3 lines long or over, usually strongly ridged on the back; spines few, ½ to 1 inch long.

C. BRACHYACANTHA, Sargent & Engelmann. A tree 20 to 30 feet high, or sometimes larger, with smoothish or, in very old trunks, rough bark; spines on the whitish branches numerous, stout, short (3 to 6 or 8 lines long), mostly curved, sometimes terminating the branches; leaves lanceolate-oblong to ovate or rhombic, 1½ to 2 or 2½ inches long, attenuate into a short petiole, thick and almost coriaceous, appressed-serrate, shining, with ribs almost obliterated, those of the terminal shoots larger, broader, slightly lobed, with large foliaceous dentate or sub-entire stipules *; flowers small for the genus, with broadly lanceolate entire calyx lobes and 5 styles; fruit depressed-globose, about ½ inch through, black-blue with bloom; nutlets (3 lines long) with 2 slight grooves on the nearly smooth back.

In the Red River region, first collected by *Drummond* (Louisiana Coll. 1832, no. 105 in part); Webster Parish, La., *C. Mohr*, 1880, both without flower or fruit; Concord, Texas, *C. S. Sargent*, March 29, 1881, with flower buds; west of Longview, Texas, *G. W. Letterman*, August 19, 1882, with mature fruit. "they looked from a distance like plum trees with small blue fruit, the ground under them was covered with the fallen haws." The species is easily recognized by its coriaceous, shining almost ribless leaves; in *C. Douglasii* they are broader, membranaceous and dull, in *C. rivularis* intermediate between the two.

I may add here that Prof. Sargent rediscovered the obscure *C. berberifolia*, Torr. & Gray, which was founded on a single flowerless specimen, in the very region, near Opelousas, Western Louisiana,

*The stipules of Crataegus are not often noticed and I am not sure that they possess much constancy or diagnostic value. Generally they are found only or at least are most persistent on the shoots; they are always oblique and petioled or stipulate, broadly triangular to linear, mostly incised-dentate or sometimes glandular-dentate, rarely entire.

where Dr. Carpenter first collected it about 50 years ago; it is a small tree with dark ash-gray branchlets bearing numerous long (1½ to 2 inches long) stout straight spines; leaves spatulate or obovate, obtuse, attenuate into a short petiole or almost sessile, simply serrate towards the upper part, ¾ to 1½ inches long; those of the shoots similar or acutish, often doubly or incisely serrate or slightly lobed, with linear glandular stipules, all persistently pubescent; compound corymb woolly; flowers large, calyx lobes linear, entire; styles 3; fruit unknown.—G. ENGELMANN.

Salix flavescens, Nutt., var. Scouleriana.—In undertaking a revision of the Willows for the *Flora of California* it was found that the material available for the purpose was, in some respects, very scant and unsatisfactory. The rich collections which have since been made, while confirming the accuracy of some portions of the work done under such unfavorable circumstances, reveal, in other directions, incompleteness and mistakes which I expect to correct in a lump by and by. It is desirable, however, that the following correction be made immediately.

The typical *Salix flavescens* of Nuttall is a Rocky Mountain shrub, or small tree, found also in the Sierra Nevada and the mountains of Oregon and Washington Territory, while the coast forms, constituting the greater portion of what is included under the name of *S. flavescens* in the Flora of California, should be arranged as a variety of that species for which the old name of *Scouleriana* might well be retained, and under which *S. brachystachys*, Benth., and *S. capreoides*, And., would be placed as striking modifications. While *S. flavescens* and var. *Scouleriana* exhibit an intricate diversity of forms which defy the drawing of any line between them, all are easily enough distinguished from their Atlantic representative *S. discolor*; and so also, *S. lasiolepis* and var. *Fendleriana* (of corresponding range and affinity) are more nearly allied to each other than is either to the Atlantic *S. lucida*. I may remark that this is in accordance with Prof. Sargent's recent statement that "the North American continent may be most conveniently divided, in regard to its forest geography, into Atlantic and Pacific regions, by the line of the eastern base of the Rocky Mountains."—M. S. BEBB.

The Flora of North America.—Last summer at Montreal Dr. Gray read a paper bearing the above title, which is so full of interest to every American botanist that we can hardly forbear publishing it in full as it appears in the *Am. Jour. of Science* for November. We will however pass over all that was said in regard to the Floras of Michaux and Pursh and give that concerning Dr. Gray's own work, for his name will always be more intimately associated with the North American Flora than that of any other botanist. There is too a good deal of ignorance as to the nature